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SEQUENCE LISTING

<110> Anderson, Marilyn, A., Lay, Fung T., Heath, Robyn, L.

<120> Plant-derived molecules and genetic sequences encoding same and uses therefor

<130> 18-01

<140> USSN 10/072,809
<141> 2002-02-08

<150> USSN 60/267,271
<151> 2001-02-08

<160> 62

A16

<170> PatentIn version 3.0

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1 5 10 15

aaa cca cca tgc aga aaa gct tgt atc agt gag aaa ttt act gat ggt 96
Lys Pro Pro Cys Arg Lys Ala Cys Ile Ser Glu Lys Phe Thr Asp Gly
20 25 30

cat tgt agc aaa atc ctc aga agg tgc cta tgt act aag cca tgt 141
His Cys Ser Lys Ile Leu Arg Arg Cys Leu Cys Thr Lys Pro Cys
35 40 45

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Leu Phe Val Ala Tyr Glu Val Gln Ala
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Val Phe Asp Glu Lys Met Thr Lys Thr Gly Ala Glu Ile Leu Ala Glu
1               5                   10                  15

gaa gca aaa act ttg gct gca gct ttg ctt gaa gaa gag ata atg gat       96
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ctc ttt gtt gcc tat gag gtg caa gct aga gaa tgc aaa aca gaa agc 96
Leu Phe Val Ala Tyr Glu Val Gln Ala Arg Glu Cys Lys Thr Glu Ser
20 25 30

aac aca ttt cct gga ata tgc att acc aaa cca cca tgc aga aaa gct 144
Asn Thr Phe Pro Gly Ile Cys Ile Thr Lys Pro Pro Cys Arg Lys Ala
35 40 45

tgt atc agt gag aaa ttt act gat ggt cat tgt agc aaa atc ctc aga 192
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50 55 60

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aaa cca cca tgc aga aaa gct tgt atc agt gag aaa ttt act gat ggt       96
Lys Pro Pro Cys Arg Lys Ala Cys Ile Ser Glu Lys Phe Thr Asp Gly
            20                  25                  30

cat tgt agc aaa atc ctc aga agg tgc cta tgt act aag cca tgt gtg      144
His Cys Ser Lys Ile Leu Arg Arg Cys Leu Cys Thr Lys Pro Cys Val
        35                  40                  45

ttt gat gag aag atg act aaa aca gga gct gaa att ttg gct gag gaa      192
Phe Asp Glu Lys Met Thr Lys Thr Gly Ala Glu Ile Leu Ala Glu Glu
    50                  55                  60

gca aaa act ttg gct gca gct ttg ctt gaa gaa gag ata atg gat aac      240
Ala Lys Thr Leu Ala Ala Ala Leu Leu Glu Glu Glu Ile Met Asp Asn
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Lys Pro Pro Cys Arg Lys Ala Cys Ile Ser Glu Lys Phe Thr Asp Gly
            20                  25                  30

His Cys Ser Lys Ile Leu Arg Arg Cys Leu Cys Thr Lys Pro Cys Val
        35                  40                  45

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Ala Lys Thr Leu Ala Ala Ala Leu Leu Glu Glu Glu Ile Met Asp Asn
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ctc ttt gtt gcc tat gag gtg caa gct aga gaa tgc aaa aca gaa agc 96
Leu Phe Val Ala Tyr Glu Val Gln Ala Arg Glu Cys Lys Thr Glu Ser
20 25 30

aac aca ttt cct gga ata tgc att acc aaa cca cca tgc aga aaa gct 144
Asn Thr Phe Pro Gly Ile Cys Ile Thr Lys Pro Pro Cys Arg Lys Ala
35 40 45

tgt atc agt gag aaa ttt act gat ggt cat tgt agc aaa atc ctc aga 192
Cys Ile Ser Glu Lys Phe Thr Asp Gly His Cys Ser Lys Ile Leu Arg
50 55 60

agg tgc cta tgt act aag cca tgt gtg ttt gat gag aag atg act aaa 240
Arg Cys Leu Cys Thr Lys Pro Cys Val Phe Asp Glu Lys Met Thr Lys
65 70 75 80

aca gga gct gaa att ttg gct gag gaa gca aaa act ttg gct gca gct 288
Thr Gly Ala Glu Ile Leu Ala Glu Glu Ala Lys Thr Leu Ala Ala Ala
85 90 95

ttg ctt gaa gaa gag ata atg gat aac taa ttagagatta gaagaaatta 338
Leu Leu Glu Glu Glu Ile Met Asp Asn
100 105

aggatgcagt atcacacata ataaagtttc tacctttctt aaaagtgtag ctaatgttgt 398

gttttaattg gcttttagta gccttttatt acactttaaa taagtgtggc acttcaatcc 458

tttgtgcaat cttgcactaa gtttatttgt gtacttttaa tgaaaatgac cttctatggt 518

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Leu Phe Val Ala Tyr Glu Val Gln Ala Arg Glu Cys Lys Thr Glu Ser
20 25 30

Asn Thr Phe Pro Gly Ile Cys Ile Thr Lys Pro Pro Cys Arg Lys Ala

35 40 45

Cys Ile Ser Glu Lys Phe Thr Asp Gly His Cys Ser Lys Ile Leu Arg
50 55 60

Arg Cys Leu Cys Thr Lys Pro Cys Val Phe Asp Glu Lys Met Thr Lys
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Thr Gly Ala Glu Ile Leu Ala Glu Glu Ala Lys Thr Leu Ala Ala Ala
85 90 95

Leu Leu Glu Glu Glu Ile Met Asp Asn
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taagtgtggc acttcaatcc tttgtgcaat cttgcactaa gtttatttgt gtacttttaa 180
tgaaaatgac cttctatggt ctttggttaa aaaaaaaaaa aaa 223

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20 25 30

Asn Thr Phe Pro Gly Ile Cys Ile Thr Lys Pro Pro Cys Arg Lys Ala
35 40 45

Cys Ile Ser Glu Lys Phe Thr Asp Gly His Cys Ser Lys Leu Leu Arg
50 55 60
Arg Cys Leu Cys Thr Lys Pro Cys Val Phe Asp Glu Lys Met Ile Lys
65 70 75 80

Thr Gly Ala Glu Thr Leu Val Glu Glu Ala Lys Thr Leu Ala Ala Ala
85 90 95

Leu Leu Glu Glu Glu Ile Met Asp Asn
100 105

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<211> 105
<212> PRT
<213> peptide

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20 25 30

Ser Gln Thr Phe Pro Gly Leu Cys Phe Met Asp Ser Ser Cys Arg Lys
35 40 45

Tyr Cys Ile Lys Glu Lys Phe Thr Gly Gly His Cys Ser Lys Leu Gln
50 55 60

Arg Lys Cys Leu Cys Thr Lys Pro Cys Val Phe Asp Lys Ile Ser Ser
65 70 75 80

Glu Val Lys Ala Thr Leu Gly Glu Glu Ala Lys Thr Leu Ser Glu Val
85 90 95

Val Leu Glu Glu Glu Ile Met Met Glu
100 105

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<211> 78
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<213> peptide

<400> 22
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20 25 30

Thr Cys Glu Ser Gln Ser His Arg Phe Lys Gly Pro Cys Ser Arg Asp
35 40 45

Ser Asn Cys Ala Thr Val Cys Leu Thr Glu Gly Phe Ser Gly Gly Arg
50 55 60

Cys Pro Trp Ile Pro Pro Arg Cys Phe Cys Thr Ser Pro Cys
65 70 75

<210> 23
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1 5 10 15

Leu Phe Leu Ser Thr Glu Met Gly Pro Met Thr Ser Ala Glu Ala Arg
20 25 30

Thr Cys Glu Ser Gln Ser His Arg Phe His Gly Thr Cys Val Arg Glu
35 40 45

Ser Asn Cys Ala Ser Val Cys Gln Thr Glu Gly Phe Ile Gly Gly Asn
50 55 60

Cys Arg Ala Phe Arg Arg Arg Cys Phe Cys Thr Arg Asn Cys
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20 25 30

Cys Glu Ser Gln Ser His Arg Phe Lys Gly Thr Cys Val Ser Ala Ser
35 40 45

Asn Cys Ala Asn Val Cys His Asn Glu Gly Phe Val Gly Gly Asn Cys
50 55 60

Arg Gly Phe Arg Arg Arg Cys Phe Cys Thr Arg His Cys
65 70 75

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<211> 47
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Arg Glu Cys Lys Thr Glu Ser Asn Thr Phe Pro Gly Ile Cys Ile Thr
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Lys Pro Pro Cys Arg Lys Ala Cys Ile Ser Glu Lys Phe Thr Asp Gly
20 25 30

His Cys Ser Lys Leu Leu Arg Arg Cys Leu Cys Thr Lys Pro Cys
35 40 45

<210> 26
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Gln Ile Cys Lys Ala Pro Ser Gln Thr Phe Pro Gly Leu Cys Phe Met
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Asp Ser Ser Cys Arg Lys Tyr Cys Ile Lys Glu Lys Phe Thr Gly Gly
20 25 30

His Cys Ser Lys Leu Gln Arg Lys Cys Leu Cys Thr Lys Pro Cys
35 40 45

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Arg His Cys Glu Ser Leu Ser His Arg Phe Lys Gly Pro Cys Thr Arg
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Asp Ser Asn Cys Ala Ser Val Cys Glu Thr Glu Arg Phe Ser Gly Gly
20 25 30

Asn Cys His Gly Phe Arg Arg Arg Cys Phe Cys Thr Lys Pro Cys
35 40 45

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<400> 28
Arg Val Cys Glu Ser Gln Ser His Gly Phe His Gly Leu Cys Asn Arg
1 5 10 15

Asp His Asn Cys Ala Leu Val Cys Arg Asn Glu Gly Phe Ser Gly Gly
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Arg Cys Lys Gly Phe Arg Arg Arg Cys Phe Cys Thr Arg Ile Cys
35 40 45

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Glu Ser Asn Cys Ala Ser Val Cys Gln Thr Glu Gly Phe Ile Gly Gly
20 25 30

Asn Cys Arg Ala Phe Arg Arg Arg Cys Phe Cys Thr Arg Asn Cys
35 40 45

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Phe Pro Cys
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Asp Ser Asn Cys
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35 40 45

Phe Pro Cys
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His Gly Ser Cys Asn Tyr Val Phe Pro Ala His Lys Cys Ile Cys Tyr

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        35                  40                  45

Phe Pro Cys
    50

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            20                  25                  30

Arg His Gly Ser Cys Asn Ile Pro Phe Pro Ser Asn Lys Cys Ile Cys
        35                  40                  45

Tyr Phe Pro Cys
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        35                  40                  45

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20 25 30

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35 40 45

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<211> 47
<212> PRT
<213> peptide

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Gly Arg Cys Arg Asp Asp Val Arg Cys Trp Cys Thr Arg Asn Cys
35 40 45

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<400> 40
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20 25 30

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35 40 45

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<400> 41
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35 40 45

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Asp Arg Leu Cys Ser Asn Glu Cys Val Lys Glu Glu Gly Gly Trp Thr
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Ala Gly Tyr Cys His Leu Arg Tyr Cys Arg Cys Gln Lys Ala Cys
35 40 45

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Cys Arg Asp Asp Phe Arg Cys Trp Cys Thr Lys Asn Cys
35 40 45

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20 25 30

Gly Ala Cys His Lys Arg Glu Asn His Trp Lys Cys Phe Cys Tyr Phe
35 40 45

Asn Cys

50

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20 25 30

Gly Gly Ala Cys His Tyr Gln Phe Pro Ser Val Lys Cys Phe Cys Lys
35 40 45

Arg Gln Cys
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<211> 50
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<400> 47
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1 5 10 15

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20 25 30

Gly Ala Cys His Val Arg Asn Gly Lys His Met Cys Phe Cys Tyr Phe
35 40 45

Asn Cys
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<400> 48
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20 25 30

Gly Thr Cys His Asp Trp Lys Cys Phe Cys Thr Gln Asn Cys
35 40 45

<210> 49
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<213> peptide

<400> 49
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20 25 30

Gly Ala Cys His Lys Arg Gly Asn Trp Lys Cys Phe Cys Tyr Phe Asn
35 40 45

Cys

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1 5 10 15

Phe Thr Gly Leu Cys Ile Thr Asn Pro Gln Cys Arg Lys Ala Cys Ile
20 25 30

Lys Glu Lys Phe Thr Asp Gly His Cys Ser Lys Ile Leu Arg Arg Cys
35 40 45

Leu Cys Thr Lys Pro Cys Thr Gly Ala Glu Thr Leu Ala Glu Glu Ala
50 55 60

Thr Thr Leu Ala Ala Ala Leu Leu Glu Glu Glu Ile Met Asp Asn
65 70 75

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20 25 30

Asn Thr Phe Pro Gly Ile Cys Ile Thr Lys Pro Pro Cys Arg Lys Ala
35 40 45

Cys Ile Lys Glu Lys Phe Thr Asp Gly His Cys Ser Lys Ile Leu Arg
50 55 60

Arg Cys Leu Cys Thr Lys Pro Cys Val Phe Asp Glu Lys Met Ile Lys
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100 105

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20 25 30

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35 40 45

Ala Cys Leu Ser Glu Lys Phe Thr Asp Gly Lys Cys Ser Lys Ile Leu
50 55 60

Arg Arg Cys Ile Cys Tyr Lys Pro Cys Val Phe Asp Gly Lys Met Ile
65 70 75 80

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85 90 95

Ala Leu Leu Glu Glu Glu Met Met Asp Asn
100 105

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35 40 45

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Glu Ser Asn

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Pro Arg Ser Glu Glu Lys Lys Asn Asp Arg Ile Cys Thr Asn Cys Cys
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Ala Gly Thr Lys Gly Cys Lys Tyr Phe Ser Asp Asp Gly Thr Phe Val
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Cys Glu Gly Glu Ser Asp Pro Arg Asn Pro Lys Ala Cys Thr Leu Asn
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tgt gat cca aga att gcc tat gga gtt tgc ccg cgt tca gaa gaa aag 240
Cys Asp Pro Arg Ile Ala Tyr Gly Val Cys Pro Arg Ser Glu Glu Lys
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Lys Asn Asp Arg Ile Cys Thr Asn Cys Cys Ala Gly Thr Lys Gly Cys
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aag tac ttc agt gat gat gga act ttt gtt tgt gaa gga gag tct gat 336
Lys Tyr Phe Ser Asp Asp Gly Thr Phe Val Cys Glu Gly Glu Ser Asp
100 105 110

cct aga aat cca aag gct tgt cct cgg aat tgc gat cca aga att gcc 384
Pro Arg Asn Pro Lys Ala Cys Pro Arg Asn Cys Asp Pro Arg Ile Ala
115 120 125

tat ggg att tgc cca ctt gca gaa gaa aag aag aat gat cgg ata tgc 432
Tyr Gly Ile Cys Pro Leu Ala Glu Glu Lys Lys Asn Asp Arg Ile Cys
130 135 140

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Thr Asn Cys Cys Ala Gly Lys Lys Gly Cys Lys Tyr Phe Ser Asp Asp
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gga act ttt gtt tgt gaa gga gag tct gat cct aaa aat cca aag gcc      528
Gly Thr Phe Val Cys Glu Gly Glu Ser Asp Pro Lys Asn Pro Lys Ala
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tgt cct cgg aat tgt gat gga aga att gcc tat ggg att tgc cca ctt      576
Cys Pro Arg Asn Cys Asp Gly Arg Ile Ala Tyr Gly Ile Cys Pro Leu
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Ser Glu Glu Lys Lys Asn Asp Arg Ile Cys Thr Asn Cys Cys Ala Gly
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Lys Lys Gly Cys Lys Tyr Phe Ser Asp Asp Gly Thr Phe Val Cys Glu
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Gly Arg Ile Ala Tyr Gly Ile Cys Pro Leu Ser Glu Glu Lys Lys Asn
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gat cgg ata tgc aca aac tgt tgc gca ggc aaa aag ggc tgt aag tac      816
Asp Arg Ile Cys Thr Asn Cys Cys Ala Gly Lys Lys Gly Cys Lys Tyr
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ttt agt gat gat gga act ttt gtt tgt gaa gga gag tct gat cct aga      864
Phe Ser Asp Asp Gly Thr Phe Val Cys Glu Gly Glu Ser Asp Pro Arg
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aat cca aag gcc tgt cct cgg aat tgt gat gga aga att gcc tat gga      912
Asn Pro Lys Ala Cys Pro Arg Asn Cys Asp Gly Arg Ile Ala Tyr Gly
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Ile Cys Pro Leu Ser Glu Glu Lys Lys Asn Asp Arg Ile Cys Thr Asn
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tgt tgc gca ggc aag aag ggc tgt aag tac ttt agt gat gat gga act     1008
Cys Cys Ala Gly Lys Lys Gly Cys Lys Tyr Phe Ser Asp Asp Gly Thr
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Phe Ile Cys Glu Gly Glu Ser Glu Tyr Ala Ser Lys Val Asp Glu Tyr
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Pro Arg Asn Pro Lys Ala Cys Pro Arg Asn Cys Asp Pro Arg Ile Ala
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Cys Pro Arg Asn Cys Asp Gly Arg Ile Ala Tyr Gly Ile Cys Pro Leu
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Asp Arg Ile Cys Thr Asn Cys Cys Ala Gly Lys Lys Gly Cys Lys Tyr
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Phe Ser Asp Asp Gly Thr Phe Val Cys Glu Gly Glu Ser Asp Pro Arg
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Cys Cys Ala Gly Lys Lys Gly Cys Lys Tyr Phe Ser Asp Asp Gly Thr
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<223> X = K or S or R

<220>
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<223> X = P or N or H

<220>
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<223> X = no amino acid or V

<220>
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<220>
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<220>

<221> misc_feature
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<223> X = no amino acid or E or K

<220>
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<222> (84)..(84)
<223> X = no amino acid or K or I

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<222> (85)..(85)
<223> X = no amino acid or M or S

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<223> X = no amino acid or G or K

<220>
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<222> (90)..(90)
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<220>
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<222> (98)..(98)
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<220>
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<223> X = no amino acid or T

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<222> (103)..(103)
<223> X = no amino acid or A or V

<220>
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<222> (104)..(104)
<223> X = no amino acid or L or V

<220>
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<223> X = no amino acid or L

<220>
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<223> X = no amino acid or E

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<222> (111)..(111)
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<222> (112)..(112)
<223> X = no amino acid or N or E

<400> 61
Met Xaa Xaa Ser Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10 15

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Ala Xaa
20 25 30

Xaa Xaa Cys Xaa Xaa Xaa Ser Xaa Xaa Phe Xaa Gly Xaa Cys Xaa Xaa
35 40 45

Xaa Xaa Xaa Cys Xaa Xaa Xaa Cys Xaa Xaa Glu Xaa Phe Xaa Xaa Gly
50 55 60

Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Cys Xaa Cys Thr Xaa Xaa Cys Xaa
65 70 75 80

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
85 90 95

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
100 105 110

<210> 62
<211> 47
<212> PRT
<213> Peptide

<220>
<221> misc_feature
<222> (1)..(46)
<223> X is any amino acid. X is depicted as a in the text.

<400> 62
Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa
1   5   10   15

Xaa Xaa Xaa Cys Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
            20   25   30

Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Cys Xaa Cys Xaa Xaa Xaa Cys
        35   40   45